EQUIP. SHOP
Shop No. 3516 McDougall
Received 9-17-65
Completed

# INSTALLATION INSTRUCTIONS

# MODEL TTS 20A LOOP AROUND TEST SYSTEM

NEC
TTS-20A
LOOP T/S

NORTHEAST ELECTRONICS CORPORATION
AIRPORT ROAD
P. O. BOX 425
CONCORD, N. H.
AREA CODE 603 224-7466

NORTHEAST ELECTRONICS CORPORATION
Concord, New Hampshire

# MODEL TTS 20A LOOP AROUND SYSTEM INSTALLATION INSTRUCTIONS

Before attempting to connect and operate the Model TTS 20 System, perform a visual inspection to insure that no damage has been caused in shipment, such as components being pushed together etc.

Connect terminals 1 and 2 of terminal board TB-1 located on the rear of the TTS 20AC-11 unit to 48 volt station battery. Positive (+) is to be connected to terminal 1 of TB-1 and negative (-) to terminal 2 of TB-1. Connect the line input to terminal board TB-2 located on the rear of the TTS 20AC-11 unit as follows:

Tip to terminal 1
Sleeve to terminal 6
Ring to terminal 3

The harness interconnections between the TTS 20AC-11 unit and the TTS 61BCS Selector Switch are to be completed per installation dwg. #D-90108. When more than one TTS 61BCS Selector Switch assembly is used, remove the BX relay from all but one of the switch assemblies; only one is required per TTS 20AC-11.

The milliwatt signal connects to TB-1 terminals 5 and 6 of the TTS 20AC-11. An idle termination for the milliwatt supply, if required, connects across TB-1, terminal 7 and 8 of the TTS 20AC-11. This can be a resistor of the proper value (600 or 900 ohms).

Busy and dial tone circuits are to be connected to terminals 18 and 19 of terminal board TB-1 on the rear of the TTS 20AC-11 unit as follows:

Busy to terminal 18
Dial to terminal 19

Adjust the level of these tones to -15 dbm with the front panel level controls to insure against interference with the control tones used.

The correct setting of the Level Adj control located on the front panel of the TTS 100 unit is accomplished as follows:

Advance the Level Adj control to a point no further than necessary for proper operation of the TTS 20AC-1 equipment when receiving tone signals from the TTS 20B Control Unit through maximum line attenuation that the units will be used in conjunction with. If necessary, this can be simulated by placing

an attenuator in the line input to the TTS 20AC-1 unit and adjusting it so that the total attenuation over which the units are to be operated will be realized. For a safety margin add from 3 to 5 db of attenuation. After this adjustment has been completed, tighten the locking nut on the Level Adj control as no further adjustment should be required.

Circuits to be tested must be connected to the TTS 61BCS Selector Unit (or units) as indicated on the connection diagram of the TTS 61BCS dwg. #C-60653. The protective front cover must be removed and connections made from the front on this unit. The toll circuits are to be fed through from the rear and connected to the ring, tip, and sleeve appearances on the connector blocks as indicated.

Thermal delay relay TH-2 has been provided to supply a busy tone and an ON HOOK condition for approximately 5 seconds upon seizure of the incoming line to the TTS 20AC unit. Other time intervals may be realized through the proper selection of delay relay TH-2.

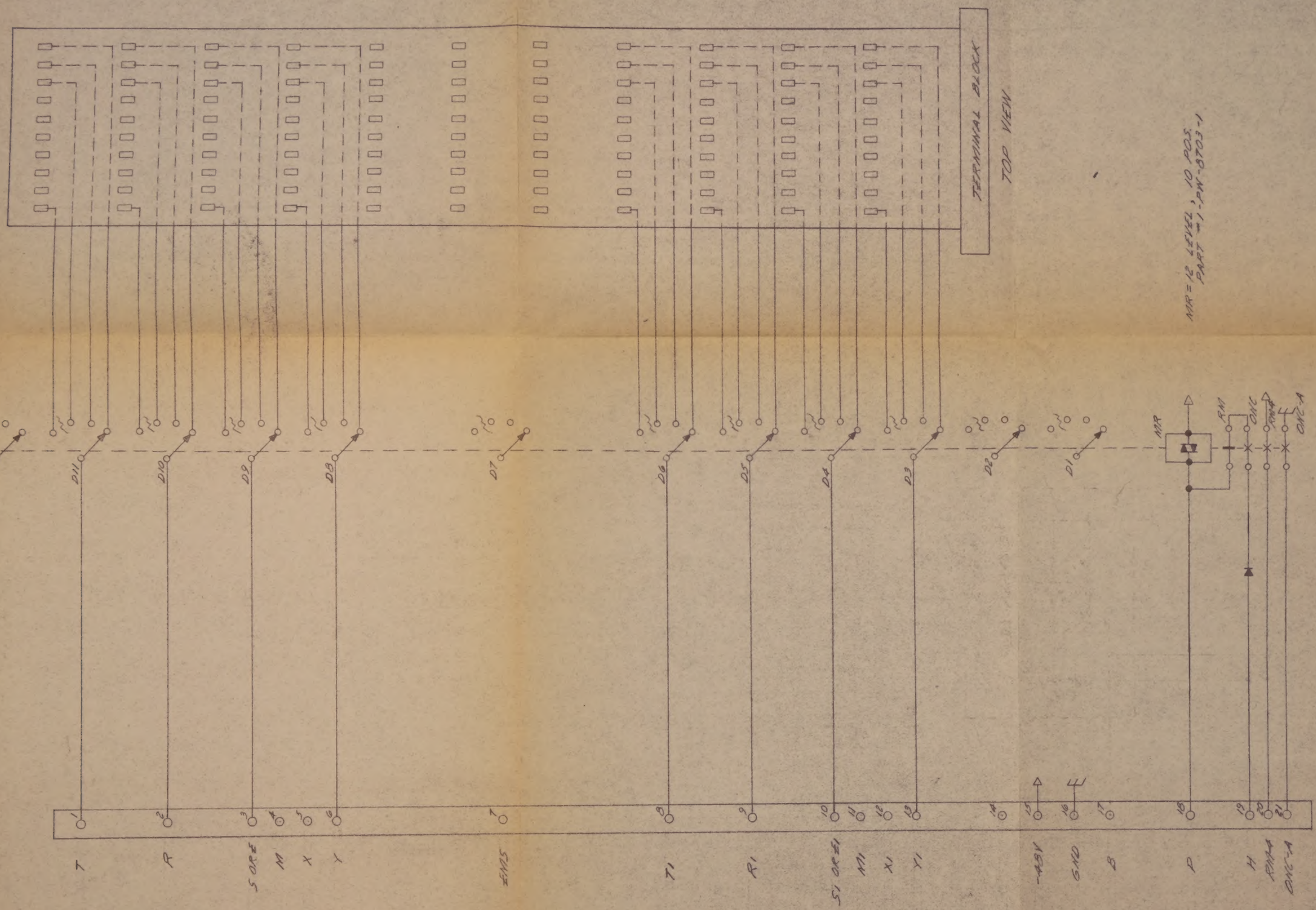
Unless otherwise specified, the TTS 20AC-11 input circuits have been strapped for a connector appearance.

Figure 4 of the instruction manual shows other options for input circuits.

List of Installation Drawings Supplied

D90108
D90066
C60652
C60636
C60653

| REVISIONS | | | SIZE | REV |
|---|---|---|---|---|
| | | | CONT ON SHEET | SH NO |
| ZONE | SYM | DESCRIPTION | DATE | APPROVAL |




| ITEM | REQ'D | PART NO | DESCRIPTION | MATL | MATL SPEC |
|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±1/64 DECIMALS ±.005 ANGLES ±½°
ALL SURFACES
MATERIAL
FINISH
PAINT
SCREEN PER

DRAWN LEO B. GAGNON
DATE 6-16-64
APPD
ISSUED

| APPROVED | DATE |
|---|---|
| ENGR | |
| MFG | |
| MATL | |

SCHEMATIC
ACCESS SWITCH WIRING FOR USE WITH LOOP AROUND EQUIPMENT

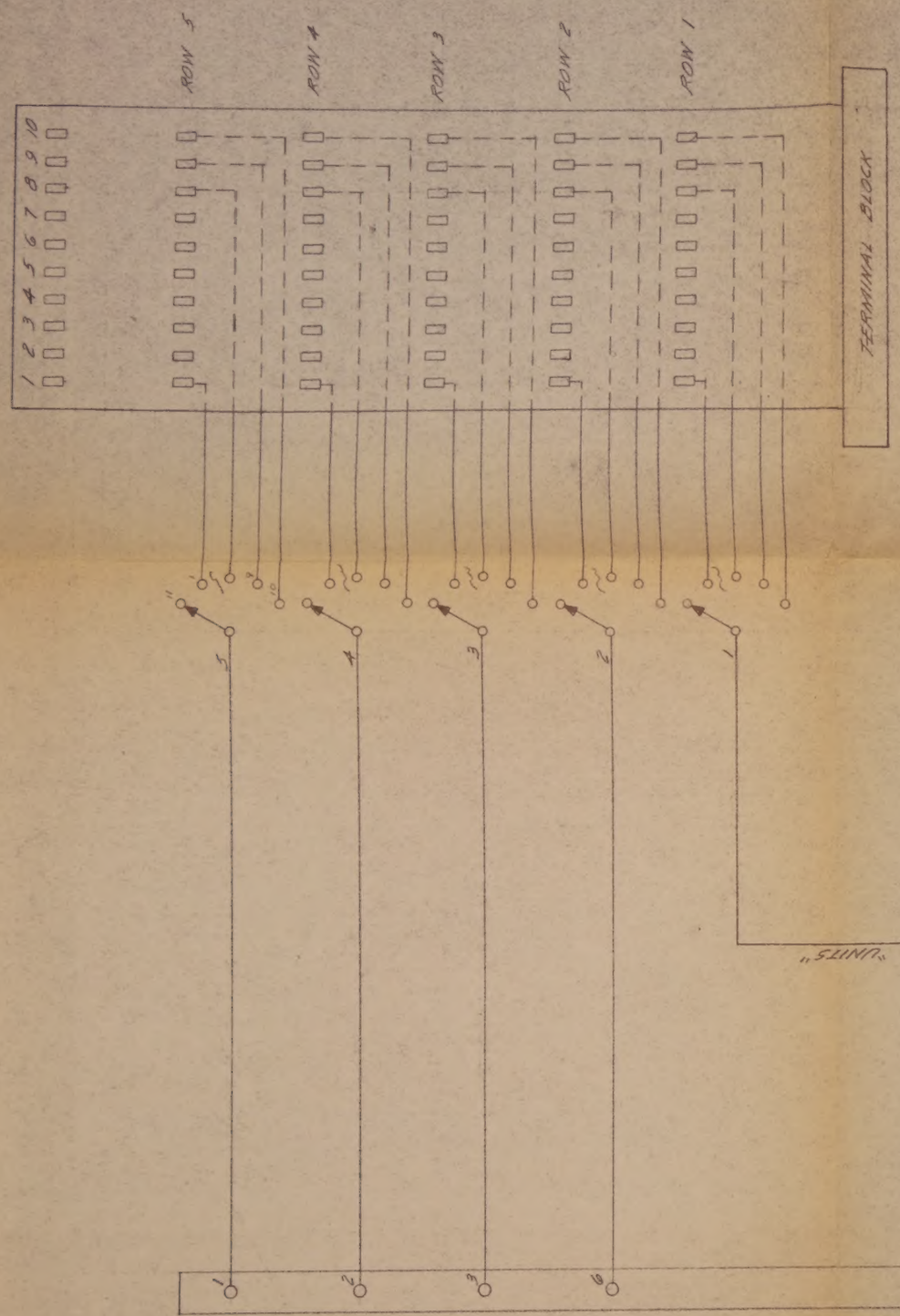
TTS-61BCS

SCALE WT CALC ACTUAL

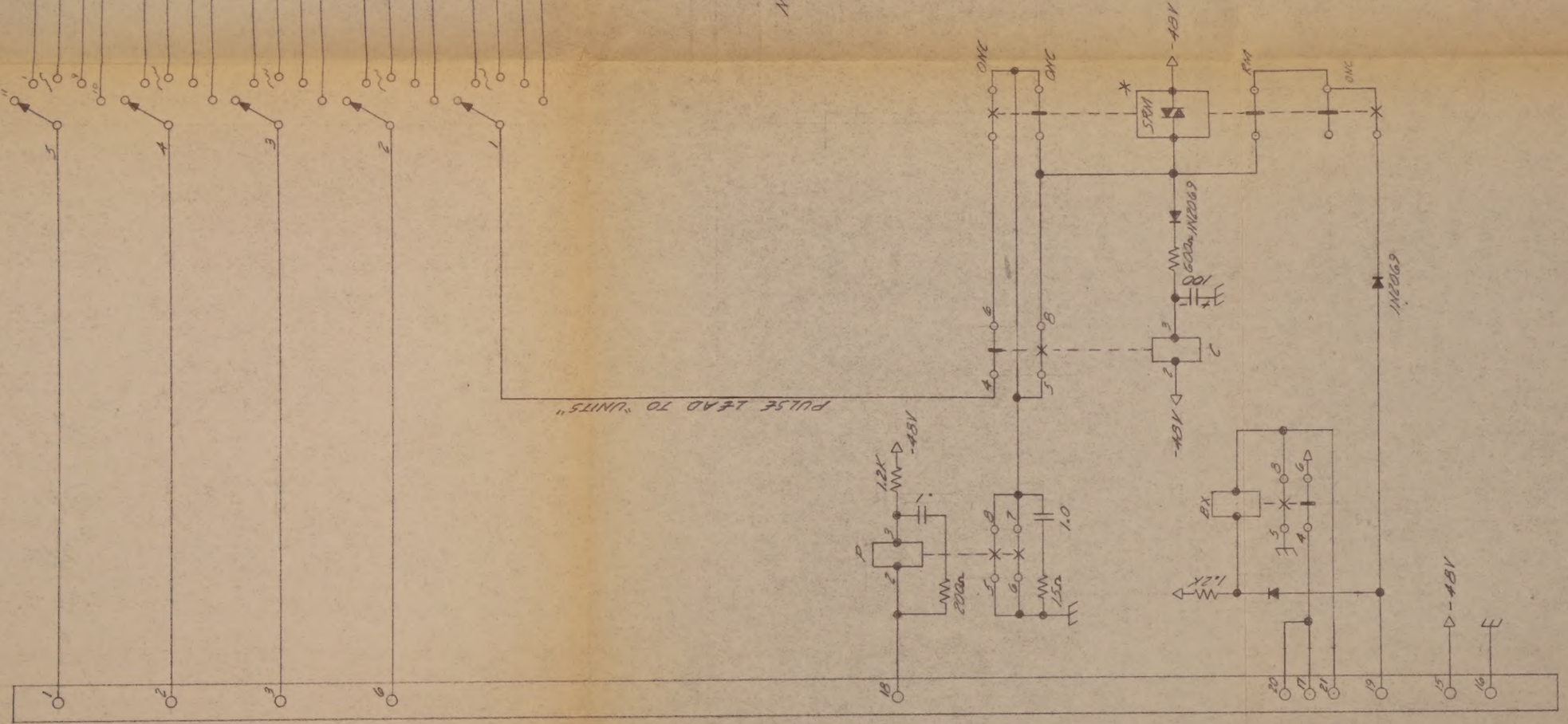
NORTHEAST ELECTRONICS CORP.
CONCORD, N. H.
REF. NO. C-1185
SIZE C 60636
CONT ON SHEET SH NO

REV
SIZE CONT ON SHEET SH NO

| REVISIONS | | | SIZE / CONT ON SHEET / SH NO | REV |
|---|---|---|---|---|
| ZONE | SYM | DESCRIPTION | DATE | APPROVAL |
| | | | | |




NOTES:
CUSTOMER CONN. SIDE
* SPM = 11 POS. SEL. SW.
SHOWN IN "HOME" POS.




| ITEM | REQ'D | PART NO | DESCRIPTION | MATL | MATL SPEC |
|---|---|---|---|---|---|
| | | | | | |

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ±1/64 DECIMALS ±.005 ANGLES ✓ ±½°
ALL SURFACES
MATERIAL
FINISH
PAINT
SCREEN PER

DRAWN LEO B. GABNON
DATE 7-1-64
APPD
ISSUED

| APPROVED | DATE |
|---|---|
| ENGR | |
| MFG | |
| MATL | |

SCHEMATIC
PRESELECTOR ASSEMBLY
FOR LOOP AROUND SYSTEMS
(2 WIRE - TRS SUPERVISION)
TTS-61BCS

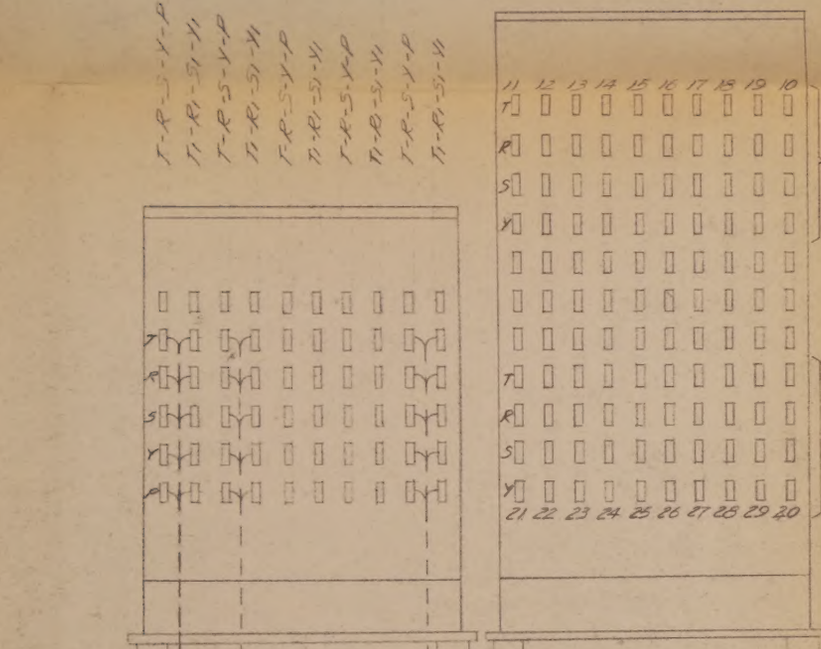
SCALE | WT CALC ACTUAL

NORTHEAST ELECTRONICS CORP.
CONCORD, N. H.
REF. NO. C-1135
SIZE C 60652
CONT ON SHEET SH NO

| REVISIONS | | | | |
|---|---|---|---|---|
| ZONE | SYM | DESCRIPTION | DATE | APPROVAL |

SIZE | REV | CONT ON SHEET | SH NO

T-R-3-Y-P CIRCUITS 11-10
T1-R1-S1-Y1 CIRCUITS 20-20
T-R-S-Y-P CIRCUITS 31-30
T1-R1-S1-Y1 CIRCUITS 41-40
T-R-S-Y-P CIRCUITS 51-50
T1-R1-S1-Y1 CIRCUITS 61-60
T-R-S-Y-P CIRCUITS 71-70
T1-R1-S1-Y1 CIRCUITS 81-80
T-R-S-Y-P CIRCUITS 91-90
T1-R1-S1-Y1 CIRCUITS 01-00




CIRCUITS 31-30 | CIRCUITS 51-50 | CIRCUITS 71-70 | CIRCUITS 91-90

CIRCUITS 41-40 | CIRCUITS 61-60 | CIRCUITS 81-80 | CIRCUITS 01-00

TB TB TB TB TB TB

\# \#

INPUT CONNECTIONS FROM LOOP AROUND

TOP VIEW - REAR

NOTE:
\# INSTALLED FACTORY WIRING.

| ITEM | REQ'D | PART NO | DESCRIPTION | MATL | MATL SPEC |
|---|---|---|---|---|---|

LIST OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ±1/64 DECIMALS ±.005 ANGLES ✓ ±½°
ALL SURFACES
MATERIAL
FINISH
PAINT
SCREEN PER

DRAWN R.A. SMITH
DATE 7-2-64
APPD
ISSUED

| APPROVED | DATE |
|---|---|
| ENGR | |
| MFG | |
| MATL | |

INSTALLATION DRAWING
MODEL TTS-01BCS
2100L
SWITCH ASSEMBLY
REF. DWG. #C-60632 (PRESEL)
REF. DWG. #C-60636 (ACCESS)

SCALE | WT CALC ACTUAL

NORTHEAST ELECTRONICS CORP.
CONCORD, N. H.
REF. NO. C-1855
SIZE C 60653
CONT ON SHEET SH NO

88122